

<High Automation difficult to achieve without Intelligent Control: comprehensive theory encompassing Artificial Intelligence and Fuzzy Theory expected to be realized by late '90s>

(Attendance at the Academic Conference on Artificial Intelligence and Fuzzy Theory – Professor Antsaklis, Univ. of Notre Dame, USA)

The Academic Conference concerning Artificial Intelligence (AI), Neural Systems, and Fuzzy Theory took place for three days from June 6 to June 8, at the Center for Korea Federation of Small and Medium-Sized Firms. The earnest manner in which experts from home and abroad presented their work and their audience listened with rapt attention seemed to well represent the heightened attention the subject matter has been receiving in recent years.

Professor Panos J. Antsaklis from the University of Notre Dame, who presented his recent work on Intelligent Control at the conference, graciously agreed to a brief interview.

“High-level automated systems require intelligent control. In other words, sophisticated automated systems should be able to perform their functions for a time without any external guidance, even under uncertain conditions imposed by the system itself.”

Dr. Antsaklis, a renowned scholar in the field of Intelligent Control, especially Neural Networks, explained that “Intelligent Control, a relatively new concept, is a comprehensive theory that encompasses AI, Neural Networks, and Fuzzy Theory, and represents the means to achieve highly automated systems.” He added, “Intelligent Control theory today is progressing towards automation of control, and also applies in designing the decision-making mechanisms of the automated control system itself. However, an automated control system must be able to control areas even beyond the scope of mathematical deduction and derivative equations.” For example, he continued, “if a problem arises in a spacecraft, the current process has the control station on the ground run simulations and then send the pilot instructions on how to proceed. In these cases, however, spaceships should become automated, so that, ultimately, they can solve all their own problems.”

Therefore, he predicted, highly automated systems cannot be achieved with existing control theories alone, and the end of the '90s could see achievement of automation at the highest level.

Professor Antsaklis, who also serves as a member on the Control Systems Society Board of Governors at the Institute of Electrical and Electronics Engineers (IEEE), admitted that “although Professor Zadeh of University of California in the U.S. first created the Fuzzy Theory in 1965, it was more actively researched and applied in Europe and Japan.” “However,” he added, “interest in this field has been gaining momentum in the United States as well in recent years.”

After the conference, Dr. Antsaklis spent the remainder of his visit to Korea leading seminars and presenting special lectures at the Seoul National University College of Engineering and industrial enterprises.